### **PATENT COOPERATION TREATY**

From the INTERNATIONAL SEARCHING AUTHORITY	PCT			
Blackley, Manchester M9 8ZS	NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION  (PCT Rule 44.1)  Date of making (day/month/year)  10/05/2005			
SMC 60629/WO	FOR FURTHER ACTION See paragraphs 1 and 4 below			
International application No.	International filing date			
PCT/GB2004/004868	(day/month/year) 18/11/2004			
Applicant				
AVECIA LIMITED	TA EN			
1. X The applicant is hereby notified that the international search report and the written opinion of the International Search Report, however, for more detailed, if he so wishes, to amend the claims of the International Application (see Rule 46):  When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report, however, for more details, see the notes on the accompanying sheet.  Where? Directly to the International Bureau of WIPO, 3d chemin des Cotombettes  1211 Geneva 20, Switzerland, Fascimile No (41–22) 740.14.35  For more detailed instructions, see the notes on the accompanying sheet.  2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.  3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  A reminders  Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the international publication, a notice of withdrawal of the international application, or of the priority claim, must reach the international publication. The applicant may submit comments to an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international perilminary examination report has been or is to be establish				
Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2  NL-2280 HV Rijswijk	Authorized officer  Maria Cajide			
Tel. (+31-70) 340-2040, Tx. 31 651 epo ni,	<del>-</del>			

#### NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

#### **INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19**

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international phulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments?

#### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

#### **NOTES TO FORM PCT/ISA/220 (continued)**

The letter must indicate the differences between the claims as filed and the claims as amended, it must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

# The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

- [Where originally there were 48 claims and after amendment of some claims there are 51]:
   "Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
- [Where originally there were 15 claims and after amendment of all claims there are 11]:
   "Claims 1 to 15 replaced by amended claims 1 to 11."
- [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
   "Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
   "Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
- 4. [Where various kinds of amendments are made]: "Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

#### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

#### It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

#### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

#### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

## PATENT COOPERATION TREATY

# **PCT**

## **INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER	see Form PCT/ISA/220 as, where applicable, item 5 below.					
SMC 60629/WO	AOTION						
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)					
PCT/GB2004/004868	18/11/2004	20/11/2003					
Applicant							
AVECIA LIMITED	AVECIA LIMITED						
This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.							
This International Search Report consists	of a total of sheets.						
X It is also accompanied by	a copy of each prior art document cited in this	report.					
<ol> <li>Basis of the report</li> <li>With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</li> </ol>							
The international this Authority (Rul		ation of the international application furnished to					
b. With regard to any nucleo	otide and/or amino acid sequence disclosed	in the international application, see Box No. I.					
2. Certain claims were four	nd unsearchable (See Box II).						
3. Unity of invention is lack	king (see Box III).						
4. With regard to the title,							
the text is approved as su	• • • • • • • • • • • • • • • • • • • •						
X the text has been establish  TRISAZO-DYESTUFFS	hed by this Authority to read as follows:						
The same of the sa							
5. With regard to the abstract,							
X the text is approved as sul	omitted by the applicant.						
	ned, according to Rule 38.2(b), by this Authority in the date of mailing of this international searc						
6. With regard to the drawings,							
a. the figure of the drawings to be published with the abstract is Figure No							
as suggested by the	ne applicant.						
	Authority, because the applicant failed to sugg						
	: Authority, because this figure better character	izes the invention.					
b none of the figures is to be	published with the abstract.						

#### INTERNATIONAL SEARCH REPORT.

International Application No PCT/GB2004/004868

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C09B31/28 C09E C09D11/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 CO9D CO9B Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. Α US 2001/027734 A1 (GEISENBERGER JOSEF ET 1-12 AL) 11 October 2001 (2001-10-11) cited in the application page 3 - page 4 page 8 P,A WO 03/095562 A (AVECIA LIMITED; MISTRY, 1 - 12PRAHALAD, MANIBHAI; BRADBURY, ŔOY) 20 November 2003 (2003-11-20) the whole document & WO 03/095563 A (AVECIA LIMITED; MISTRY, PRAHALAD, MANIBHAI; BRADBURY, ROY) 20 November 2003 (2003-11-20) -/--Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 26 April 2005 10/05/2005 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Ketterer, M Fax: (+31-70) 340-3016

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#### INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/004868

		PC1/GB2004/004808
C.(Continue Category °	ation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Section Ch, Week 199840 Derwent Publications Ltd., London, GB; Class A60, AN 1998-463026 XP002326162 -& JP 10 195320 A (NIPPON KAGAKU KOGYOSHOKK) 28 July 1998 (1998-07-28) cited in the application page 8	1-12
1	GB 05955 A A.D. 1911 (PHILIP ARTHUR NEWTON) 11 January 1912 (1912-01-11) examples A,B page 1, line 8 - line 9	1,5,6
•	DE 243 122 C (FARBENFABRIKEN VORM. FRIEDR. BAYER & CO. IN ELBERFELD) 2 February 1912 (1912-02-02) examples 1,2 page 1, column 1, line 25 - line 26	1,5,6
	CH 217 944 A (I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT) 15 November 1941 (1941-11-15) the whole document & CH 217 943 A (I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT) 15 November 1941 (1941-11-15)	1,4-6
	FR 815 403 A (I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT) 12 July 1937 (1937-07-12) examples 1-4	1,5,6
	GB 259 970 A (I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT) 13 January 1928 (1928-01-13) examples 1-3 page 1, column 1, line 32 - line 37	1,5,6
<b>,</b>	FR 622 974 A (I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT) 14 June 1927 (1927-06-14) examples	1,5,6
,	US 1 615 550 A (OESCH JOSEPH B) 25 January 1927 (1927-01-25) the whole document	1,4-6
	DE 469 288 C (I. G. FARBENINDUSTRIE AKTGES) 8 December 1928 (1928-12-08) examples 1,3 page 1, column 1, line 1 - line 4	1,5,6

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#### INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/004868

C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Section Ch, Week 200167 Derwent Publications Ltd., London, GB; Class A89, AN 2001-592335 XP002326169 -& JP 2001 108828 A (SUMITOMO CHEM CO LTD) 20 April 2001 (2001-04-20) abstract	1,4-6

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#### INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB2004/004868

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2001027734	A1	11-10-2001	DE	10015004	A1	27-09-200
			ΑT	268359		15-06-2004
		•	BR	0109552	Α	10-06-2003
			CA	2406892		24-09-2002
			DE	50102473		08-07-2004
			WO	0172906		04-10-200
						02-01-2003
			EP	1268674		
			JP	2003528964		30-09-2003
			TR	200401327	4 	21-07-2004
WO 03095562	Α	20-11-2003	ΑU	2003227918		11-11-2003
			AU	2003230002	A1	11-11-2003
			EP	1506260	A1	16-02-200
			EP	1506261		16-02-200!
			WO.	03095562		20-11-2003
			WO	03095563		20-11-2003
WO 03095563	Α	20-11-2003	AU	2003227918	A1	11-11-2003
			AU	2003230002	A1	11-11-2003
			EP	1506260		16-02-2009
			EP	1506261		16-02-200
			WO	03095562		20-11-2003
			WO	03095563		20-11-2003
				03095503		
JP 10195320 	A	28-07-1998	NONE			
GB 191105955	Α	11-01-1912	NONE			
DE 243122	С		NONE			
CH 217944	Α	15-11-1941	CH	217943	Α	15-11-1941
CH 217943	Α	15-11-1941	СН	217944	A	15-11-1941
FR 815403	Α	12-07-1937	NONE			
GB 259970	Α	13-01-1928	NONE			
 FR 622974	 А	14-06-1927	NONE			
 US 1615550		25-01-1927	NONE			
DE 469288		08-12-1928	NONE			
JP 2001108828	Α	20-04-2001	NONE			

#### PATENT COOPERATION TREATY

INTERNATIONAL SEARCHING AUTHORITY To: WRITTEN OPINION OF THE see form PCT/ISA/220 INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1) Date of mailing (day/month/year) see form PCT/ISA/210 (second sheet) Applicant's or agent's file reference FOR FURTHER ACTION see form PCT/ISA/220 See paragraph 2 below International application No. Priority date (day/month/year) International filing date (day/month/year) PCT/GB2004/004868 18.11.2004 20.11.2003 International Patent Classification (IPC) or both national classification and IPC C09B31/28, C09D11/00 Applicant **AVECIA LIMITED** 1. This opinion contains indications relating to the following items: ☑ Box No. I Basis of the opinion ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☑ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application 2. **FURTHER ACTION** If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered. If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220. 3. For further details, see notes to Form PCT/ISA/220. Name and mailing address of the ISA: **Authorized Officer** 



European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl

Fax: +31 70 340 - 3016

Ketterer, M

Telephone No. +31 70 340-3645



# WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/GB2004/004868

_	Bo	x No	. I Basis of the opinion .				
1.	<ol> <li>With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</li> </ol>						
		lan	s opinion has been established on the basis of a translation from the original language into the following guage , which is the language of a translation furnished for the purposes of international search der Rules 12.3 and 23.1(b)).				
2.	. With regard to any <b>nucleotide and/or amino acid sequence</b> disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:						
	a. ty	ype	of material:				
	[	_	a sequence listing				
	(		table(s) related to the sequence listing				
	b. format of material:						
	[	J	in written format				
	[	<b>_</b>	in computer readable form				
	c. time of filing/furnishing:						
	[		contained in the international application as filed.				
	[	J .	filed together with the international application in computer readable form.				
	[	_	furnished subsequently to this Authority for the purposes of search.				
3.		has	addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto been filed or furnished, the required statements that the information in the subsequent or additional pies is identical to that in the application as filed or does not go beyond the application as filed, as propriate, were furnished.				
4.	Additional comments:						

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims No: Claims

Inventive step (IS)

Yes: Claims No: Claims 1-12

1-12

Industrial applicability (IA)

Yes: Claims

1-12

No: Claims

2. Citations and explanations

see separate sheet

#### Box No. VI Certain documents cited

 Certain published documents (Rules 43bis.1 and 70.10) and /or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

V. Reference is made to the following documents:

D1: US -A- 2001/0027734 D2: WO -A- 03/095562

D3: Derwent database WPI, AN=1998-463026[40]

& D3a: JP-A- 10 - 195 320 (japanese original document)

D4: GB -A- 1911/05955 D5: DE -C- 0 243 122

V.1. The subject matter of claims 1-12 is new; no novelty destroying documents could be retrieved.

V.2. The subject matter of claims 1-12 seems to be inventive in the sense of Article 33(3) PCT.

The problem underlying the current application can be seen in 'providing valuable colorants for ink jet printing inks'.

V.2.1. D1 discloses for the same purpose (" [Black] tris-azo metal complex dyes with better fastness to light and water, better solubility and better storage stability in inks than existing black dyes and good fastness to rubbing.... they also have the properties required for ink-jet printing inks...") metalized (preferably copper) trisazodyes, whereby some of them bear a terminal pyrazolone coupling component. Generally, the position of the 'righthanded' azogroup is located at the 2-position of the naphthol moiety. On page 8 of D1 the metal (copper) - free trisazo dye is disclosed as the intermediate product before the subsequent metalisation step. Considering D1 as a whole, the 2-position of the respective azo group is always in the 2-position of the naphthol ring. This technical feature presents therefore a critical technical feature of the teaching of D1. A skilled person would not modify it by seeking alternative dyes to solve the above mentioned problem; furthermore, he would be lead from D1 to metalize the free trisazo chromophor to obtain good working ink jet ink dyes; claims 1-12 are inventive over D1.

D3 discloses anionic black polyazo dyes (metalized or metal-free) useful for dyeing paper, pulp, leather and cellulose fibres showing excellent dyeing affinity and light resistance. On page 8 of D3a a metal-free trisazo pyrazolone dye is shown. D3 (D3a) seems to lack a clear indication for a skilled person to modify this dye in the direction of the claimed dyes by solving the above mentioned technical problem. Also here, the position of the

# WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

International application No.

PCT/GB2004/004868

'righthanded' azo group is fixed in the 2-position. Also D3 is not pertinent against inventive step.

D4/D5 deal with trisazodyes used to color resp. print cotton fabrics. Ink jet printing is not mentioned in D4/D5 at all. The dyes disclosed therein differ from the claimed dyes also only in the position of the right azo group. As the technical field discussed in these documents is clearly different from the current application, a skilled person would not consider them at all to seek a solution for the problem underlying the current application. The claims 1-12 seem to be inventive over D1,D3-D5.

#### VI. Certain documents cited:

VI.1. Document D2 is published on the claimed priority date. It could be of relevance by entering the regional examination phase before the European Patent Office.